

Science – Year 7 Overview

	Term 1	Term 2	Term 3	Term 4	Term 5	Term 6	Careers
Year 7	Matter	Chemical Methods	Systems (1)	Disease	Electricity & Magnetism	Space	
	<p>The Particle Model of Matter: everything is made of particles and exists in one of three states of matter: solid, liquid or gas. Matter can change between these states.</p> <p>The particles that everything is made of are actually called 'atoms'.</p>	<p>Chemical mixtures can be separated by: filtration, evaporation, distillation & chromatography.</p> <p>A solute will dissolve in a solvent to form a solution.</p>	<p>Respiration is essential for life and is how cells access energy.</p> <p>Glucose and Oxygen react to form Carbon Dioxide and Water.</p> <p>The Digestive System allows us to get the Glucose from our diet. The Respiratory System allows us to get the Oxygen from the air.</p>	<p>Pathogens are microorganisms that cause disease.</p> <p>Pathogens can be passed on through direct touch, body fluids, coughing and sneezing and contaminated food/drink.</p> <p>The Immune System protects the body against disease.</p> <p>White Blood Cells are the specific part of the Immune System that fights against disease.</p>	<p>Electricity is produced by renewable and non-renewable sources.</p> <p>Components in an electrical circuit are represented by symbols.</p> <p>Circuits can be set up in Series or Parallel – the current & potential difference follow different rules in each.</p> <p>Magnets have poles which create magnetic fields.</p> <p>Magnetism is a non-contact force.</p>	<p>Different planets have different strengths of gravitational pull.</p> <p>Different objects have different weights on different planets due to Gravity.</p> <p>Moon orbit planets and planets orbit the Sun.</p> <p>The Earth's tilt and orbit gives us our seasons and night/day.</p> <p>We are part of a galaxy called "The Milky Way".</p>	<p>Term 2: A career in forensic science.</p> <p>When studying chemical methods and how chemical mixtures can be separated, students will look at how a forensic scientist uses knowledge and understanding of chemical methods to solve crimes.</p> <p>Term 3: A career as a respiratory physiologist.</p> <p>When studying Systems 1 and how our Respiratory system helps our body get the oxygen it needs, students will look at how a respiratory physiologist uses their knowledge and understanding of organ systems to treat patients with lung diseases.</p> <p>Term 5: A career in electrical engineering.</p> <p>When studying electricity and magnetism and the difference between series and parallel circuits, students will look at how an electrical engineer uses their knowledge and understanding of electricity and magnetism to design a computer controller.</p>
	Atoms & Elements	Bonding & Molecules	Cells	Natural World	Forces		
<p>Atoms have protons, neutrons and electrons.</p> <p>Atoms form elements, compounds and mixtures. Elements & compounds can react to form different elements & compounds. Mixtures can be separated</p>	<p>Molecules contain bonds. In a chemical reaction, bonds are broken, and new bonds are formed.</p>	<p>Every living thing is made of cells.</p> <p>Animal cells contain organelles, as do plant cells.</p> <p>Respiration takes place in the mitochondria.</p> <p>There are specialised animal & plant cells:</p>	<p>Plants take in light energy and make Glucose in the process of Photosynthesis. Leaves have adaptations that help this process to happen.</p> <p>Producers carry out photosynthesis and are consumed by</p>	<p>Forces are categorised into contact and non-contact forces.</p> <p>Forces can be represented by arrows and free body diagrams.</p> <p>Gravity acts on all objects and pulls towards the centre of the Earth.</p>			



using various chemical methods as they are not chemically bonded.		<ul style="list-style-type: none">• Sperm & Egg Cells.• Red Blood Cells & White Blood Cells.• Palisade Cells.	animals in an ecosystem. Toxic substances can accumulate through food chains/webs in an ecosystem. Energy is also transferred between organisms in a food chain/web.			
	Reactions & Energy	Systems (2)	Energy			
	Reactants react to form products. These reactions can be shown in word equations. Reactions can happen in a lab using chemical compounds, mixtures and elements, or they can happen naturally inside cells, for example: respiration.	The male and female reproductive systems undergo many changes during puberty in response to hormones. In females, an egg is released from the ovary each month. During fertilisation, a sperm cell can join with this egg in the Fallopian Tube.	Photosynthesis takes in light energy; light energy is one form of energy – there are many different forms of energy stores and transfers. Energy can come from renewable & non-renewable sources.			